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SAS/SATA Protocol Suite™ 5.70 - Release Notes

Updated: September 15, 2014

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1. Overview

This Read Me file contains last-minute product information for the SAS/SATA Protocol Suite™ software for Microsoft Windows. For full instructions on using the SAS/SATA Protocol Suite™ please see the User's Manual and other documents provided with this product.

The SAS/SATA Protocol Suite™ software works with the following products:

- **Teledyne LeCroy Sierra M124™**
- **Teledyne LeCroy Sierra M122™**
- **Teledyne LeCroy Sierra M6-4™**
- **Teledyne LeCroy Sierra M6-2™**
- **Teledyne LeCroy Sierra M6-1™**

NOTE: This CD ROM does **NOT** include support for the following Teledyne LeCroy products: **STX-460**™, **STX A6-4**™, **STX A6-4S**™, **STX-431**™, **STX-430**™, **STX-231**™, **STX-230**™ and **STX-131**™. The '**STX SAS/SATA Protocol Suite**' that supports these products can be found on the Teledyne LeCroy Software Installation web page.

2. System Requirements

The following is a list of recommendations for the configuration of the host machine that runs the SAS/SATA Protocol Suite™ applications and that is connected to the Sierra M124, Sierra M6-4, Sierra M6-2 or Sierra M6-1 systems. Please note that the application would operate on systems with less memory and slower CPU rate than the recommended; however, for best results it is recommended that the host machine meets or exceeds the suggested configuration.

2.1. Software

Operating System:

- Windows 8.1 (x86 and x64), Windows Server 2012 (x64), Windows 7 (x86 and x64), Windows Server 2008R2 (x64), Windows Xp (x86).
- The latest Service Pack available for the Windows OS in use is required.
- It is recommended that the 64-bit Windows version of the Operating Systems is installed, as these allow using more RAM memory than the 32 bit ones.

Required applications:

Microsoft Internet Explorer, version 6 or newer. To view the manuals, datasheets and other documents, please install 'Adobe Acrobat Reader' you can find on the Adobe website (http://get.adobe.com/reader).
To read the SATA Compliance and SAS Verification reports, please install Microsoft Word.

2.2. Hardware

Processor:

For optimum performance, use processors of Intel's Pentium4 family, AMD's Athlon/Duron family, or newer compatible processors with CPU clock of at least 2GHz. In general, the CPU speed significantly impacts uploading speed.

Memory:

Minimum is 2GB of RAM. Larger memory sizes, as large as the Operating System supports, are highly recommended to increase performance.

Hard Disk:

200 MB of free hard disk space is required for installation. Additional disk space is needed for operation of applications and for storing recorded data in files. As a rule of thumb, the drive that saves the trace should have more than 3 times the size of the recorded trace available. For example, for a 4GB trace, at least 12 GB of disk space should be available.
Defragmented drives will have better performance. Hard disks with fast access times, such as SSDs, are recommended. The hard disk has been shown to have the most impact on trace save performance.

Display:

To take full advantage of the rich visualization and analysis of Teledyne LeCroy software it is recommended that the display is set to at least **1050** lines of vertical resolution with at least 24-bit color depth.
The minimum requirement for the display is a resolution of 1024x768 with at least 16-bit color depth.
In Windows 7 and up, please use the “Smaller – 100% (default)” setting under Control Panel -> All Control Panel Items -> Display.

Connectivity:

To optimize trace saving performance, a Gigabit Ethernet interface is recommended.
There is no connectivity requirement if the analyzer application is used only to view pre-recorded traces.
If multiple analyzers are cascaded together, one USB port (or one Ethernet connection) per analyzer is needed. Cascaded traces are proportionally larger than traces captured with a single analyzer.
The time required to save and display larger traces can be reduced by:

- Using a system with a fast, defragmented SSD or Hard Disk, with lots of available space.
- Increasing system memory, and
- Using a system with a faster processor.

3. Installation

Please refer to the “Installing your Analyzer” chapter of the User's Manual for the details of SAS/SATA Protocol Suite™ software installation.

3.1. CD-ROM Installation

- Insert the CD ROM with the Analyzer software in the CD ROM drive.
- The installation will automatically start unless the Auto Run is turned off. In this case select the CD ROM from “My Computer” and double-click Autorun.exe
- From the CD ROM Autorun program, choose the Install Software menu item and then choose SAS or SATA Software.
- Follow the on-screen instructions to complete the installation.

3.2. Web Package Installation

- Run the setup and follow on-screen instructions to complete the installation.

3.3. USB Driver Installation

- USB driver files are automatically installed with the SAS/SATA Protocol Suite™ software installation. Users must have administrator privileges to install the required device drivers.
- **Do not connect the analyzer to the USB port until the software installation is complete.** In case it is required to manually reinstall the device drivers, they are located in the SAS/SATA Protocol Suite™ program folder. For example: C:\Program Files\LeCroy\ SAS Protocol Suite\Driver\USB.

4. Release Notes

4.1. What's New

- This is release 5.70 of the SAS/SATA Protocol Suite™ software.
- This release contains the following components:
  - Merged SAS/SATA Protocol Suite™ Version 5.70.
  - CrossSync™ Version 2.32.
  - STATS™ Version 1.75.
- This release includes the following features and enhancements:
  - ST14207 Add SAS Verification for 12G to Sierra M12x (phase II)
  - ST14153 make bookmark window resizable
  - ST13888 FR - Make it possible to export 12G training sequence to a Trainer script
  - ST13674 FR - When SpreadSheet View is exported to text, XFER-Length field is always in hexidecimal
  - ST13664 FR - Make enhancements to Power Tracker/Power Measurement feature to extend recording time
  - ST11494 FR - Export to Trainer: Make option to NOT automatically insert delays
  - ST5922 SAS Verfication tests - Evaluation comments.
- The following issues are fixed:
  - ST14698 During trace export using the Trace Access API, sometimes the trace size is 200MB, but sometimes it is 900MB (M12x filtering on SATA frames issue)
  - ST14311 Search for LBA Range is not working
  - ST14117 SATA Compliance: Analyzers not

licensed for SAS or Trainer get error message when "SSD Drive" option is checked.
    - ST13922 Bug #227: Analyzer Stop API call failure constantly occurs
    - ST13694 Bug #224: ATS hung during VSE scan of Trace file
    - ST13693 Bug #223: Corrupted OOB due to IDLE command preceding OOB
    - ST13658 Bug #222: STATS/SATA Analyzer test script runtime is slowing down dramatically when consecutive VBScripts are run
    - ST13657 ACC-EXP-005-X power card is always turned on when recording
    - ST13613 Search dialog box clipped and not resizable
    - ST13585 Bit settings in Auxilary registers are incorrect (related to ST12278)
    - ST13556 Export Read-Write Command Report does not export 64bit LBA
    - ST13393 Bug #217: STATS will hang if one switches analyzers without closing and re-opening the application
    - ST12281 Analyzer decodes hang condition as legitimate frame
    - ST11410 No post-trigger capture against manual trigger on device OOB
    - ST11257 Need to update all trainer scripts to run at 12G

4.2. Known Issues

- (Analyzer Muxing) The Analyzer needs to detect MUX primitives from both host and device sides in order to capture the traffic correctly in the muxing mode. Sierra M124 does not support muxing.
- (Advanced Analyzer) Events on each link are counted independently. This means a condition is met if the number of events on a link equals the defined occurrence.
- (Analyzer Cascading) Because of using a chain connection for cascading boards and delay of signals, the traffic on different boards is not completely time synchronized. There is about 1 DWORD difference between each two consecutive boxes.
- On the STX460 & Sierra emulators, delay of sending HOLDA in response to HOLD is not compliant to spec. According to the spec this delay should be less than or equal 20 DWORDs for 1.5Gbps and 3Gbps. The spec for 6Gbps is 24 DWORDS. This delay on STX460 is 19 for 1.5Gbps, 23 for 3Gbps and 27 for 6Gbps. Reason of this issue is the MGTs long delay on the Virtex-4. As we checked with many real HBA and drives, looks like they have no problem with these values.
- In advanced analyzer the Set to LOW of External Trigger Out doesn't work correctly.

- Sometimes the SATA emulators do not wake up correctly by COMWAKE and need a PHY reset to wake up. As tested this issue happens rarely.
- In SAS initiator if a handshake to a received frame is deferred via error injection, a wrong task command is issued.
- (External Trigger Out – only Sierra M6-x) The external trigger out can be only be programmed once per each run.
- At 6G speed and higher, state transitions can only happen every other DWORD in the Jammer. In other speeds, rarely some back-to-back DWORD state transitions might be missed.
- On Windows 7 and higher, the API examples are located in a different folder than in Windows XP, as follows:
    - Windows XP: ROOT:\Program Files\LeCroy\SAS Protocol Suite\APIExamples
    - Windows 7 and higher: ROOT:\Users\Public\Documents\LeCroy\SAS Protocol Suite\APIExamples
- SATA Compliance tests: Phy Test group and **Host** Compliance tests are *Informative* only. These tests, and the MOI describing them (included in this release), have not been approved by the SATA-IO.
- SATA Compliance tests, clarification to the MOI: many of the tests REQUIRE the DUT be powered through the Power Expansion Card in the analyzer, and will fail otherwise.
- SAS Verification Tests: Most of these tests were implemented according to test descriptions developed by the UNH-IOL. However, no formal body is available to approve such tests, so they are on *Informative* status only.
- SAS Verification Ttests: Tests 6.7.1.16 and 6.7.1.17 were removed from this release. We are reviewing the tests and results in order to ensure that the results are consistent.
- In order for the analyzer to be detected, Ethernet connector needs to be connected before switching analyzer on (Sierra M6-4, Sierra M6-2 and Sierra M6-1).
- (CrossSync) Segmented memory is not supported in conjunction with CrossSync.
- (Installation) Can't install SAS and SATA Protocol Suites into a user-defined directory in Windows XP Chinese, Japanese and Korean. Please install into the default path. This will be fixed in a future release. (ST5736)
- Following issues and restrictions pertain specifically to the Sierra M124, and will be addressed in a future release:
    - No support for self-test
    - Number of segments in a recording is limited to 1

    - No support for Muxing
    - When connecting 12G Trainer Initiator and 12G Trainer Target to each other, some errors might be seen in the trace.
    - When upgrading from 5.10 or earlier to 5.20 or later, the SAS/SATA Protocol Suite application will automatically prompt to first update to 5.15, and then continue the upgrade to 5.20.
    - When downgrading from 5.20 or later to 5.15, update all components to the 5.15 versions, then manually power cycle the analyzer.
    - When downgrading from 5.20 or later to 5.10 or earlier, please first downgrade to 5.15, update all components to the 5.15 versions, manually power cycle the analyzer, and then go on to downgrade to 5.10 and update all components to the 5.10 versions.
- When downgrading from 5.50 or later to 5.40 or earlier, the earlier version will not require to uninstall the later version, but the later version will become corrupted. In order to run the later version, it must be re-installed (which will require to uninstall the earlier version).
- For controlling DevSlp on Sierra M6-4 using either Host Emulator or Trainer, please use only the following port configurations:
    - AHE_AHE_0_0
    - AHE_0_0_0
    - AT_AT_0_0
    - AT_0_0_0
- (ATS) Manipulating the project path for the SAS Sample Test Suite scripts requires moving all auxiliary subfolders to the new path, as the references are relative.
- (USB 3.0): In certain cases, using USB 3.0 might cause unexpected issues. If this happens, we recommend using USB 2.0. This will be fixed in a future release.

5. Previous Releases

5.1. Version 5.60

- This is release 5.60 of the SAS/SATA Protocol Suite™ software.
- This release contains the following components:
    - Merged SAS/SATA Protocol Suite™ Version 5.60.
    - CrossSync™ Version 2.32.
    - STATS™ Version 1.74.
- This release includes the following features and enhancements:
    - ST14457 Please add example of the TCG trace

into sample directory
    - ST13563 FR - Make it possible to start General Device Emulator error injection after some period of time has passed or after some number of commands
    - ST13373 FR - Trainer Resource Counter does not count FISes that were rejected by the Trainer Host.ST13240 Add TCG decodes to SATA protocol Suite
    - ST12880 Add SAS Verification for 12G to Sierra M12x (Phase I – only Speed Negotiation and Link Layer tests are implemented in this phase)
    - ST12762 SATA PS Timeout Trigger - Custom Events - GUI enhancement
    - ST12736 SATA SSHD support: NCQ NON DATA command
    - ST12509 FR - Performance analyzer: Add Frame Error Rate
    - ST12278 FR - Need to support new "Hybrid Information Feature" (hybrid hints) found in SATA 3.2
    - ST10301 Add port configuration mode of disconnect
    - ST10116 FR - Packet View: Make it possible for customers to set the color of the Operation Code field
    - ST10038 No support for Column View for trace files that were captured by Sierra M124 (Note: Print for this view is no longer supported)
    - ST6802 FR - If an OOB burst is marginal or invalid, we must point it out clearly
    - ST5224 FR - Allow bookmarks to be shared with Column view as well as other views
- The following issues are fixed:
    - ST14436 Endian issues are also in Report Generalresponse
    - ST14392 Phantom triggers on SSP response frame
    - ST14280 SAS address byte order is backwards in special Discover List Descriptor List decode
    - ST14267 VSE integers in while loop behavior is inconsistent
    - ST14266 "Diagnostic Page" shows "Not Received" on all fields
    - ST14259 "TAG" and "LUN" column in Spreadsheet View shows nothing
    - ST14015 SAS Trainer adds two Symbols with 10Bit Errors during SAS 12G synchronization test
    - ST13980 Long frames at 1.5G traffic cause CRC and Delimiter errors
    - ST13933 SATA Compliance: SSD gets "Error" result on NCQ-03 test
    - ST13912 Trainer "SATA_D10_2" command is not working properly.
    - ST13911 Warning message pops up when connecting to SAS/SATA v5.50 if analyzer is

licensed only for SATA recording
    - ST13895 NCQ-3 compliance test for SSD returns failure incorrectly
    - ST13868 Analyzer does not detect TTIU packets that begin with an invalid Pattern Marker
    - ST13843 Decoding of new "Set NV Cache Power Mode" Hybrid Information Feature command is incomplete
    - ST13631 Multi-sequencer trigger does not work
    - ST13344 SAS Verification Test 6.1.11 - 1ms timeout bigger or less?
    - ST13343 Ack/Nak primitives are not shown in the spreadsheet view when they are embedded inside a frame
    - ST13328 Hanging/Crashing condition occurring when running STATS
    - ST13284 NCQ-01 test in not being performed correctly it should wait for write to complete
    - ST13259 Discover List special decode problem
    - ST13203 SATA Host Emulator "If On Payload" Match/Mismatch feature is not working (Documentation issue)
    - ST13101 Quirky behavior when Power Expansion and IOHub Bus Engines are updated
    - ST12781 Host Emulator: 0xFF Soft Reset command gets exported as 0x00 Vendor Unique(?) "Command Type"
    - ST12479 SATA Compliance: IPM-11 Host test is incomplete
    - ST12311 SMP Protocol Decode Error
    - ST12059 Link disconnects when changing port types from AA mode to AJA mode
    - ST11936 VSE integers in while loop behavior is inconsistent

5.2. Version 5.50

- This is release 5.50 of the SAS/SATA Protocol Suite™ software.
- This release contains the following components:
    - Merged SAS/SATA Protocol Suite™ Version 5.50.
    - CrossSync™ Version 2.30.
    - STATS™ Version 1.73.
- This release includes the following features and enhancements:
    - Support native SATA View
    - SAS and SATA software merged in a single SAS/SATA protocol Suite
    - Complete support for Power Measurement on Sierra M124 and Sierra M122
    - ST12409 FR - Please add 0, AT configuration to the M122
    - ST12352 FR - Initiator Emulator: Increase size of data pattern to be compared against to 4KB
    - ST12349 FR - Make it possible to load payload for

"If On Match/Mismatch" instruction from a file
    - ST11909 FR - Need WAIT_FOR_IDLE command for Trainer
    - ST11780 Need Full Implementation Commands of ATA8 Command Set
    - ST11757 FR - Display DevSleep assertion/negation duration times in Statistical Report view
    - ST11756 FR - Statistical Report view: Display the total number of DevSleep rise/fall edges
    - ST11560 FR - SATA Compliance test - option of stopping immediately after fail
    - ST11171 Emulate “0x3B Write Buffer command with mode 0x0E"
    - ST10683 FR - Show throughput in Bus Utilization view
    - ST10488 FR - Need to be able to search trace for speed changes
    - ST10352 FR - Filtering out specific Request/Response Frames or other criteria such as all "HOLDs"
    - ST10238 FR - SATA Compliance and SAS Verification test Suites: Make it possible to run the individual tests (or the entire suite) multiple times
    - ST9862 FR - Support 8GB DDR3 DIMMs on M124 for a total of 64GB buffer size
    - ST7227 FR - Add LBA overlay feature to Host Emulator
    - ST1354 FR - Add more functionality and consistency for Find Device dialog
- The following issues are fixed:
    - ST12964 Execution Sequence Problem Issue found for Trainer code with the variable in WHILE(@VAR) for M124 .
    - ST12490 M124 Trainer speed of 1.5G has connection issue
    - ST12356 Initiator Emulator re-issues tag before previous command sequence has completed
    - ST12325 STP Protocol Error when device is waiting for Hold Acknowledge from SAS expander
    - ST12184 "Sector" number is displayed in LBA field for 0x20 Read Sectors command
    - ST11907 CATC-View "SCSI CDB" field has changed

ST11621 Traces show 1.5G, 3G and 6G link speed during OOB signaling but should only show 1.5G or nothing at all

5.3. Version 5.43

- This is release 5.43 of the SAS/SATA Protocol Suite™ software.
- This release contains the following components:
    - SAS Protocol Suite™ Version 5.43.
    - SATA Protocol Suite™ Version 5.43.
    - CrossSync™ Version 2.30.
    - STATS™ Version 1.73.

- This release includes the following features and enhancements:
  - None
- The following issues are fixed:
  - SAS Trace Access API – GetRawData issue for STP frames issue has been fixed, and API has been changed per other feedback.
  - ST12814 Host Emulator does not wait for drive response after sending Soft Reset

5.4. Version 5.40

- This is release 5.40 of the SAS/SATA Protocol Suite™ software.
- This release contains the following components:
  - SAS Protocol Suite™ Version 5.40.
  - SATA Protocol Suite™ Version 5.40.
  - CrossSync™ Version 2.28.
  - STATS™ Version 1.73.
- This release includes the following features and enhancements:
  - New Spread sheet view, allowing users to configure columns (add, remove and edit columns)
  - Advanced Auto calibration on Sierra M124 and Sierra M124 has been enhanced
  - ST12171 Need support for new NCQ Commands : RECEIVE FPDMA QUEUED 65h and SEND FPDMA QUEUED 64h
  - ST11934 Rx/Tx Settings Port Status soft LED stays red even when error count is reduced to zero.
  - ST11755 FR - Enhance VSE to access Device Sleep information
  - ST11709 Field of IDENTIFY address frame - BREAK_REPLY capable: Need enabled in Initiator Emulator
  - ST11698 SCSI SPC4 support not up to date (e.g: write buffer command missing mode entries)
  - ST11514 FR - Create "Find DUT" feature using M124 Trainer (see manual for limitations)
  - ST11469 FR - Device Emulator: Make it possible to set Identify Device words for NV Cache capabilities
  - ST11425 Show "DATE" in Spread Sheet View (SATA Protocol Suite)
  - ST11323 FR - Make it possible for HE Random LBA generator to work outside of a loop
  - ST11310 FR - support voltage monitoring
  - ST11087 FR - Make it possible to lauch SATA Compliance test suite from command line
  - ST10950 FR - Add ability to trigger on and search for specific TTIU Control and Status fields
  - ST10816 FR - Please add 0, 0, AT, 0 configuration to the M124
  - ST10301 FR - Add port configuration mode of

disconnect (this only applies to some port configurations)
    - ST10237 FR - Remove "QuickView is enabled." warning message.
    - ST10036 FR - Add new SAS protocol error: "SMP Command Response Timeout"
    - ST9928 FR - Add Spec View for Phy Capabilities
    - ST7962 FR - Allow to WAIT_FOR a signal from other Trainer port
    - ST5498 FR - [STATS] - ATS Executable items menu should have selectable check boxes for each item in the list
    - ST3108 FR-SAS Verification - change the way tests requiring an expander are selected
- The following issues are fixed:
    - ST12232 Byte order is messed up in special Identify Device decode binary format
    - ST12157 M124 External Trigger Out issues
    - ST12088 SATA Compliance: DUT gets "Error" result on GTR-05 test but result should have been "Failed."
    - ST12023 Initiator Emulator does not respond to DONE primitive from DUT within 1mS
    - ST11984 Bug #191 - STATS GUI issue: First/top line entries scroll up off the window view then cannot be viewed
    - ST11982 Multiple Code logic Execution Errors (While(0) and If(TRUE) logic failure).
    - ST11908 SATA Compliance: "Rewritable" and "Writable" GTR-03 tests for ATAPI drives do not run right
    - ST11895 Analyzer appears to lose track midway through frames that are heavily padded with ALIGN primitives
    - ST11869 SAS Trainer LRF response found bad value when trace shows correct values
    - ST11840 Filtering payload causes ACK primitives inside frame to also get filtered out
    - ST11660 SATA Compliance: HE should always send D10.2 signal at its lowest supported speed
    - ST11575 [VSE] support for LBA sector count greater then 1024 missing
    - ST11532 Partial export to CSV (spreadsheet view) in SATA Protocol Suite incorrect
    - ST11367 M6-2 Trainer - LRF function does not work after sending Sync Escape in the middle of a frame
    - ST11357 OOB seqence in SATA Protocol Suite: COMWAKE from Device display error
    - ST11316 M6-2/M6-1 External Trigger In/Out : Not functional
    - ST11149 SATA Compliance not work for host test
    - ST11133 Export to Excel filtering is not working quite right
    - ST10997 STATS; fresh install of STATS not recording traces again - Issues on Configuration

settings
    - ST8536 SAS Verification - manual and tests not up to date
    - ST7192 Saving Packet View to text takes FOREVER.
    - ST6462 API samples and INFAPI.dll need to be updated.
    - ST4592 SATA Host and Device Emulaton OOB Negation Time manipulation does not work
    - ST4508 Need to update API examples for ability to compile under MSDN 2010

5.5. Version 5.30

- This is release 5.30 of the SAS/SATA Protocol Suite™ software.
- This release contains the following components:
    - SAS Protocol Suite™ Version 5.30.
    - SATA Protocol Suite™ Version 5.30.
    - CrossSync™ Version 2.27.
    - STATS™ Version 1.71.
- This release includes the following features and enhancements:
    - Support Power Measurement on Sierra M6-4, M6-2 platforms, using the new Power Expansion Card 2 (ACC-EXP-005-X) and SATA Protocol Suite**.**
    - ST10723 FR - Need Host Emulator support for new SATA DevSlp and Hybrid Hints features
    - ST10722 FR - Need analyzer support for new SATA DevSlp and Hybrid Hints features
    - ST10721 12G Trainer: Need sample script showing how to do Manual 12G training
    - ST10483 FR - Device Emulator needs to support "Device Auto Partial to Slumber" capability
    - ST10482 FR - Enable Device Sleep capability in Device Emulator
    - ST10481 FR - Decode payload returned from 0xA2 "Security Protocol In" and 0xB5 "Security Protocol Out" SAS TCG commands
    - ST10104 FR: Export to Trace: Include export of DevSlp states
    - ST7476 Reset Auto-Increment LBA for Emulator
- The following issues are fixed:
    - ST11241 M124 trainer: unfinished loop
    - ST11202 Documentation - Customer request to add external trigger output info
    - ST10955 DevSlp monitoring mode exhibits toggling when DevSlp transitions from low to high
    - ST10770 Initiator Emulator sends incorrect ADDITIONAL CDB LENGTH value for READ(32) command
    - ST10688 Column sizing in Text View is not retained
    - ST10502 DE - Cannot set Word 76 bits 1 and 3 of Identify Device
    - ST10272 Typo does not generate a compiler

error event.
    - ST10258 Port 1 TIMER_A through TIMER_D has a glitch that generates invalid time values
    - ST10037 API emulation code written with release 4.00 does not work with release 4.30
    - ST9784 VSE html pass/fail output includes "Pending" entries.
    - ST7354 Host Emulation Script no longer runs to completion
    - ST6954 File export issue in Chinese Windows XP

5.6. Version 5.20

- This is release 5.20 of the SAS/SATA Protocol Suite™ software.
- This release contains the following components:
    - SAS Protocol Suite™ Version 5.20.
    - SATA Protocol Suite™ Version 5.20.
    - CrossSync™ Version 2.26.
    - STATS™ Version 1.70.
- This release includes the following features and enhancements:
    - Support the SAS 12G Jammer (InFusion) on Sierra M124 Protocol Analysis Platform.
    - Support the new 2-port Sierra M122 Protocol Analysis Platform.
    - **Support Power Measurement on Sierra M6-4, M6-2 platforms, using the new Power Expansion Card 2 (ACC-EXP-005-X) and SATA Protocol Suite at Beta level.**
    - **Support auto calibration on Sierra M124**
    - **Add BIOS information to About box (for Sierra M124, M408, M122 and future derivatives)**
    - ST10766 TTIU Control vs. Status views in Packet View
    - ST10704 Error detection in VSE
    - ST10136 Please make it possible to do T_0_JA_0 or TJ_0_A_0 configurations
    - ST7948 FR - Support ATA Sanitize Device command and SCSI Sanitize command
- The following issues are fixed:
    - ST10812 Host Emulator - Crash occurs when trying to specify User Defined Frame
    - ST10756 Traces created from IE script cause application to die
    - ST10737 M124 Trainer: Invalid data retrieved from LRF command
    - ST10636 SMP response frame not displaying SAS address correctly in DISCOVER LIST and export
    - ST10555 Frame Inspector view/ Spec view, not displaying correct SID and DID
    - ST10175 Unable to use the API to operate on a port other than I1/T1
    - ST10017 Target Emulator returns 12 byte

payload for 0x9E Read Capacity (16) command
    - ST9888 Last dword of trace's first data frame is missing from Packet View payload viewer
    - ST9780 SAS Verification test displays inconsistent error message and erroneous messages
    - ST9191 M124: Training Sequence searching in term of fields
    - ST9178 SNW-3 PHY Capabilities not displayed correctly
    - ST8793 [SW] File dependent Payload/Data Fields in Initiator Emulator Projects don't warn the user when the respective bin file is missing
    - ST8338 SATA Compliance - SSD fails DOF-02 test when test is run in sequence
    - ST7354 Host Emulation Script no longer runs to completion

5.7. Version 5.10

- Release 5.10 of the SAS/SATA Protocol Suite™ software contains the following components:
    - SAS Protocol Suite™ Version 5.10.
    - SATA Protocol Suite™ Version 5.10.
    - CrossSync™ Version 2.26.
    - STATS™ Version 1.67.
- This release includes the following features:
    - ST8870 Can't search for Check Condition - Now there is a drop down list for status field in advanced search.
    - ST8794 Full Path of Files used in File dependent Payload/Data Fields in Initiator Emulator Projects cannot be found
    - ST7901 FR - Provide decode of 512 byte payload returned from Smart Read command
    - ST5018 FR- Port Frame Inspector view from FC Protocol Suite
- The following issues are fixed:
    - ST9705 Asserting "Detach" and "Attach" Events does not stop the HE from sending COMRESET
    - ST9339 Transfer Length for 0x40 and 0x42 Read Verify Sectors and Read Verify Sectors Ext commands is always reported to be zero
    - ST9337 LBA and Transfer Length for 0xCE Write Multiple FUA Ext command is absent in Spreadsheet View
    - ST9243 Target Emulator project (.std) files get corrupted if connection to analyzer is lost
    - ST9227 SATA Compliance - DE does not link up with Host on IPM-02 Host test
    - ST9198 Cannot run SATA Host Compliance test suite without Device Power card being installed
    - ST9171 SAS SNW-3 Phy Capabilities Bits are not being decoded properly

    - ST8501 VSE: need an errno response instead of a prompt
    - ST8459 Manual trigger does not allow adjustment of trigger position

5.8. Version 5.05

- Release 5.05 Build 590 of the SAS/SATA Protocol Suite™ software contains the following components:
    - SAS Protocol Suite™ Version 5.05.
    - SATA Protocol Suite™ Version 5. 05.
    - CrossSync™ Version 2.25.
    - STATS™ Version 1.67.
- This release includes the following features:
    - Support new power expansion card, controlling SATA DevSlp (in Host Emulator)
    - ST8916 [API][Enhancement] Add support for VIEW_TYPE of PACKET_VIEW to ExportToText function
    - ST8822 [STATS][Example Scripts][Enhancement] Example Scripts should work for multiple devices, not just an M6-4
    - ST8685 [STATS] Enhancement - Allow configuration paths in STATS to be set/controlled via scripts
    - ST8647 [API] StartRecording function in the Automation API should validate trace file path
- The following issues are fixed:
    - ST9251 Scrambled view of primitives is incorrect in Packet View vs Column View
    - ST9100 Host Emulator - Insert HOLD Primitive action cannot be done just once
    - ST8979 Can no longer Expand/Collapse All
    - ST8889 Insert Open Address Frame action is not working quite right
    - ST8838 Initiator Emulator Random LBA generator does not work quite right when Upper Limit is over 10000 Sectors
    - ST8768 "Copy command" (from trace) function for Host Emulation no longer works
    - ST8717 Trainer - ALIGN during frame corrupts the data scrambling
    - ST8663 Trainer - Can't send Align(0) between CRC and EOF
    - ST8506 "NCQ Commands Time out Threshold" is not working properly
    - ST8062 Column View does not decode invalid characters correctly in 10B mode
    - ST7228 HE - When Read Capacity 16 command is sent with ALLOCATION LENGTH over 4 bytes command is aborted
    - ST7107 32 Byte CDB decode is wrong in CATC view

5.9. Version 5.01

- This is release 5.01 Build 575 of the SAS/SATA Protocol Suite™ software.
- This release contains the following components:
    - SAS Protocol Suite™ Version 5.01.
    - SATA Protocol Suite™ Version 5.01.
    - CrossSync™ Version 2.25.
    - STATS™ Version 1.65.
- This release includes the following updates:
- Added Features:
    - None
- Issues Fixed are:
    - ST9186 Crash: Waveform View
    - ST9058 Possible Trainer compilation issue

5.10. Version 5.00

- This is release 5.00 Build 573 of the SAS/SATA Protocol Suite™ software.
- This release contains the following components:
    - SAS Protocol Suite™ Version 5.00.
    - SATA Protocol Suite™ Version 5.00.
    - CrossSync™ Version 2.25.
    - STATS™ Version 1.65.
- This release includes the following updates:
- Added Features:
    - ST7481 FR - For SATA: Make it possible to trigger on a speed change AND search the trace for speed changes
- Issues Fixed are:
    - ST9186 Crash: Waveform View
    - ST9115 Please incorporate change made to DOF-02 SATA Compliance test in next SW release
    - ST8551 InFusion inserts 00000000 instead of PMACK or SYNC primitives
    - ST8545 Substitute or Insert single HOLDA for WTRM action is not working
    - ST8419 SAS Verification - 10.1.5 fails drives that do not allow Max Burst Size to be changed.
    - ST8338 SATA Compliance - SSD fails DOF-02 test when test is run in sequence
    - ST8308 InFusion - 0xFF000000 mask does not work in Substitute Custom Dword action
    - ST8105 When Port3 is set to "JA," the LEDs blink even when there is no traffic then stay lit when Port3 is set to another configuration.
    - ST7957 Command line Support for STATS - [ethernet devices not supported]
    - ST7739 API function SetPortCongfiguration() does not return any errors for invalid configurations
    - ST7729 Unable to distinguish/select between SAS and SATA for Automation Calls

- ST7225 Emulation - "If On" functions do not work if last error was on an NCQ/FPDMA command
- ST5958 When using "Go to" feature to find events on channels 3 and 4, Column View slides channels 1 and 2 to the left and out of view.
- ST5602 ATS support with cascading setup limited

5.11. Version 4.35***Alpha***

- This is release 4.35, Build 527 (Alpha) of the SAS/SATA Protocol Suite™ software.
- This release contains the following components:
  - SAS Protocol Suite™ Version 4.35.
  - SATA Protocol Suite™ Version 4.35.
  - CrossSync™ Version 2.25.
  - STATS™ Version 1.62.
- This release includes the following updates:
- Added Features:
  - None.
- Issues Fixed are:
  - An issue that affected repeated runs through API calls (timing issue)

5.12. Version 4.34***Alpha***

- This is release 4.34, Build 526 (Alpha) of the SAS/SATA Protocol Suite™ software.
- This release contains the following components:
  - SAS Protocol Suite™ Version 4.34.
  - SATA Protocol Suite™ Version 4.34.
  - CrossSync™ Version 2.25.
  - STATS™ Version 1.62.
- This release includes the following updates:
- Added Features:
  - ST8842 API: need to add support for Self-test
- Issues Fixed are:
  - ST8940 Crash occurs when running SATA Compliance tests
  - ST8749 AT_AT_0_0 doesn't connect.

5.13. Version 4.30

- This is release 4.30 Build 523 of the SAS/SATA Protocol Suite™ software.
- This release contains the following components:
  - SAS Protocol Suite™ Version 4.30.
  - SATA Protocol Suite™ Version 4.30.
  - CrossSync™ Version 2.25.
  - STATS™ Version 1.62.
- This release includes the following updates:
- Added Features:
  - Separated support for Sierra products. STX

products are now only supported by separate applications: STX SAS Protocol Suite and STX SATA Protocol Suite. In order to use a mix of STX and Sierra analyzers, please use the 4.20 release or older releases. This separation has some implications on API code – please consult the API documentation.
    - Toolbar and menu changes: in order to simplify and streamline the user experience, some toolbar icons were removed and some menu items were reorganized. Most notably, the Software Settings menu item has been moved to Setup -> Preferences. Also: the toolbar button for Full Screen has been removed. This functionality can be found under the View -> Full Screen menu. To exit Full Screen mode, press Escape.
    - ST8478 Need to support A_A_A_A + TE_TE_TE_TE and A_A_A_A + IE_IE_IE_IE cascaded configurations
    - ST8373 FR - Add a function to VSE to return List of DWords in a frame. Added GetPacketData(), as described in the SAS Protocol Suite VSE Manual.
    - ST7957 Command line Support for STATS: you can run ATS in command line : STATS.exe C:\Users\Public\Documents\Temp_Proj.ats –q. NOTE: when connected over Ethernet, you might get a popup message that needs to be dismissed. This will be fixed in a future release.
    - ST7330 FR - Host Emulator should support DOWNLOAD MICROCODE Mode 3
    - ST6781 FR - [VSE] - Add Edit Script button, hide Port Status
    - ST6412 FR - Make switch to toggle between ATA CHS and LBA formats: A new option has been added to software setting (Preferences) to change the decoding mode for ATA commands
    - ST6160 FR - Add Write and Read Random LBA feature to Host and Initiator Emulators
    - ST5382 FR - Make it possible to export trace to Excel in "Current Position" or other Time Stamp formats
- Issues Fixed are:
    - ST8608 Apply show/hide port icon look truncated after change screen resolution
    - ST8606 Trainer will crash when running a script that that has RawData in the SendSATAFrame block
    - ST8370 Trainer running Link in Manual OOB mode Corrupts the FIRST COMWAKE OOB in the call to "Send_Phy_capability".
    - ST8369 XXX during Hold corrupts the data

scrambling in Trainer.

- ST8366 SATA Trainer at 3G or 6G misses ALIGN in Wait For.
- ST8358 Trainer Link in Manual OOB then switch AUTO generates a Corrupted COMINIT on CONNECT command.
- ST8338 SATA Compliance - SSD fails DOF-02 test when test is run in sequence
- ST8335 Device Emulator is only able to load one imported .stf file
- ST7590 VSE cannot get speed of Trace Event: In.LinkSpeed added to VSE manual
- ST7591 VSE: SendLevelOnly(_LINK) does not send all link frames
- ST7566 Analyzer fails to filter out idle traffic
- ST7356 SATA Compliance - Two issues with SSP-02 test
- ST7354 Host Emulation Script no longer runs to completion
- ST6948 Cascaded M6-4 units ID not shown on active device tabs
- ST6947 Find device reported wrong connection speed for some drives behind expander
- ST6945 Find Device tool reports size incorrectly for 2TB drives
- ST6861 SATA Compliance test suite does not support drives with block sizes other than 512 bytes
- ST6803 Need to decode SCSI command "ATA PASS THROUGH 16" (Opcode 0x85)
- ST6622 After starting and stopping a scenario about 20 times, jammer fails to pass traffic correctly
- ST6549 SATA Protocol Suite: Performance Tab doesn't include Trusted DMA commands in calculations
- ST6197 SATA Compliance - Suggested revisions to NCQ-03 from SSD manufacturer
- ST6165 Host Emulator - New "Repeat inserting HOLD sequence" feature sometimes injects HOLD outside of frames
- ST5902 Device Emulator - Cannot inject "Field of Frame" errors into User Defined Commands
- ST5871 SAS Verification - Seagate Yellowjacket drive gets N/A result on NACA test because default buffer is too small
- ST5528 SAS Verification - "<< Remove" button minor issue
- ST5127 Find Device does not extract enough information for successful Target Emulation
- Issues with SAS Verification tests 7.4.2 , 7.4.6 , 7.4.1, 9.2.2 , 9.4.2 and 10.1.7
- A rare Trainer hang when coming out of OOB.

5.14. Version 4.23***Alpha***

- This is release 4.23 Build 482 (Alpha) of the SAS/SATA Protocol Suite™ software.
- This release contains the following components:
    - SAS Protocol Suite™ Version 4.23.
    - SATA Protocol Suite™ Version 4.23.
    - CrossSync™ Version 2.21.
    - STATS™ Version 1.60.
- This release includes the following updates:
- Added Features:
    - ST7414 When exporting .csv file from Spreadsheet view, there is limitation on exporting number of rows. A check box has been added to the export dialog - check it to generate a single file.
- Issues Fixed are:
    - None.

5.15. Version 4.22***Beta***

- This is release 4.22 Build 481 (Beta) of the SAS/SATA Protocol Suite™ software.
- This release contains the following components:
    - SAS Protocol Suite™ Version 4.22.
    - SATA Protocol Suite™ Version 4.22.
    - CrossSync™ Version 2.21.
    - STATS™ Version 1.60.
- This release includes the following updates:
- Added Features:
    - None
- Issues Fixed are:
    - ST6828 - M6-4s running in JJJJ, JA JA JA JA or AJA AJA mode will not pass traffic on all channels.
    - ST7430 – Sometimes InFusion can't inject CRC error with Sierra M6-1
    - [ATS] SATA Analyzer stalls by prompting the user the ATS when the VB script has an invalid Trainer Script filename and invalid VSE Script filename.

5.16. Version 4.21***Beta***

- This is release 4.21 Build 480 of the SAS/SATA Protocol Suite™ software.
- This release contains the following components:
    - SAS Protocol Suite™ Version 4.21.
    - SATA Protocol Suite™ Version 4.21.
    - CrossSync™ Version 2.21.
    - STATS™ Version 1.60.
- This release includes the following updates:
- Added Features:
    - None
- Issues Fixed are:
    - ST7478 API Scripts Limited to only 100 File

Opens - Crash Bug + Enhancement Request: The 100 file limitation has been removed; the crash no longer happens.

5.17. Version 4.20

- This is release 4.20 Build 478 of the SAS/SATA Protocol Suite™ software.
- This release contains the following components:
    - SAS Protocol Suite™ Version 4.20.
    - SATA Protocol Suite™ Version 4.20.
    - CrossSync™ Version 2.21.
    - STATS™ Version 1.60.
- This release includes the following updates:
- Added Features:
    - Added a SAS Sample Test Suite using ATS, Trainer and VSE. Please refer to the added document SAS Sample Test Suite.pdf in the Documents directory of the installation for a description of these tests and how to use them. In order to use the previous ATS examples, please change the Script Path parameter in the configuration dialog.
    - ST6782 FR - [ATS][VSE] allow VSE OUTPUT LOG information to be directed to user path.
    - ST6626 Use VSE to measure time between key primitives repeatedly on every frame
    - ST6541 FR - don't reconfigure BE on each connection to M6-1
    - ST6173 FR - Need to support the new "Optical Mode" OOB signaling
    - ST5700 Remove the static link to Jammer S/n in batch scripts
    - ST5670 FR - [ATS] Allow to merge existing .ats project files
    - ST5354 FR - For Device Emulator: Need to be able to set bit #2 of word #83
    - ST2309 FR-Host Emulator: Need to be able increment Data Frame Payload Size
    - ST2042 FR - Host Emulator: add ability to modify a command without changing the error or other parameters
- Issues Fixed are:
    - ST7108 Automation API Call ITrace.ExportToTrace() causes SW Hang or SW Crash
    - ST7026 [ATS] Closing Analyzer application before closing ATS while in Simulation (offline) mode causes a crash.
    - ST6996 Older traces conversion to 4.10 truncates the trace losing information. (Also added an option to backup old trace file)
    - ST6796 SAS Verification - Drive passes 7.1.1 test but it should have failed
    - ST6693 "COMRESET Completed" does not

always appear in Column View
    - ST6625 Save Datablocks will not work on frames with unknown commands
    - ST6548 TCG: Trusted Parameters Data window displays the data from end to beginning (backwards).
    - ST6542 Host Emulator "Do Nothing" ATA Command timeout recovery action does not work as expected
    - ST6531 SATA Compliance - No trace file gets created for NCQ-04 test
    - ST6335 SATA Compliance - SSD gets Error results on NCQ-03, NCQ-04 and NCQ-05 tests
    - ST6316 M6-1 Jammer: "Insert Primitive" action is inconsistent
    - ST5941 Timeout trigger functionality is confusing, not well documented
    - ST5868 [VSE] Unexpected loss of VSE Output information without asking the user to flush
    - ST5490 Host Host Emulator - Behavior has changed when using a binary data file. Added a new setting to emulator settings. Software works as before by default; use this new setting so software doesn't update sector count automatically during the emulation run.
    - ST5476 After sending 0xFF Soft Reset HE sometimes does not wait for 0x34 D>H FIS before sending the next command
    - ST5472 Analyzer incorrectly decoding the 0x27 FIS Features register as "Security Protocol" when if fact it is TCG protocol
    - ST5469 IE SAS power management script does not always run to completion
    - ST5395 [ATS] Rerunning selected test case will wipe out previous Test Results status
    - Issue with loading Signal files on Sierra M6-2
    - [API] Issue in MakeRecording function
    - [Automation API][InFusion] Issue in StartScenario
    - [InFusion] Issue in AND of Data Patterns: when using AND, the action was prevented from taking place.

*5.18. Version 4.15 (**BETA**)*

- This is release 4.15 (Beta) Build 454 of the SAS/SATA Protocol Suite™ software.
- This release contains the following components:
    - SAS Protocol Suite™ Version 4.15 (Beta).
    - SATA Protocol Suite™ Version 4.15 (Beta).
    - CrossSync™ Version 2.11.
    - STATS™ Version 1.50.
- This release includes the following updates:

- Added Features:
  - Analyzer Network (Select Device dialog) – This allows connecting and disconnecting Analyzers on the fly, without restarting the application.
    NOTE: This requires updating the Firmware component in the analyzer over **USB,** as the previous Firmware will not report any analyzer connected over Ethernet to Software version 4.10 and up.
  - Modify NACA test to add support for cases in which the TST bit is set to '1'
  - A new API function to device interface (CIBApiDevice) named as GetPortConfiguration
  - ST6552 [VSE] [Trainer]: allow calculating byte count of frames. in.FrameLength added to VSE
    now user can get frame length (from SOF to EOF) using VSE.
  - ST6517 SATA Compliance - Extend capture duration to ensure that traces of failed tests contain the critical failure information
  - ST6188 FR - [ATS] Allow VB Script to update the Detail Column of the current test
  - ST5719 FR - Add "Apply" button so one can hide/show/filter more than one channel at a time.
  - ST5378 FR - Need to support ATA-8 "Nominal Media Rotation Rate" function
  - ST5198 FR - Customer needs a way to bypass 32KB payload truncation when trace is exported to a text file
  - ST4023 When adjusting the SAS Probe control the user has no feedback on its effect
- Issues Fixed are:
  - ST6717 App crash occurs when ADC-3 SCSI Command Pattern trigger is selected
  - ST6546 TCG: Decode Spelling Error
  - ST6475 [ATS][VSE] Full path to VSE script called from VB script is ignored.
  - ST6425 SATA Compliance - Consistent Error result on SSP-12 test
  - ST6335 SATA Compliance - SSD gets Error results on NCQ-03, NCQ-04 and NCQ-05 tests
  - ST6268 Device Emulator aborts or does not respond to 0x2F Read Log Ext command
  - ST6261 SATA Compliance - Host tests will not run on STX-231 and STX-431 unless Device Emulator is enabled
  - ST6151 Analyzer includes CRC dword in payload
  - ST6083 [ATS] Trainer script failure for large code.
  - ST6057 LBA fields for SKIP READ (0xE8)

and SKIP WRITE (0xEA) command should be 32 bits
    - ST5923 Byte order of Device Name and SAS Address are not the same in View Fields window.
    - ST5862 Initial Trainer Power_Expansion_Off function of Power Expansion Card doesn't work
    - ST5761 LOG SENSE (0x4D) command is not diplayed / decoded correctly in Packet View
    - ST5678 SATA Compliance tests - GTR-03 ATAPI test uses PIO mode when DMA or UDMA is required.
    - ST5671 Viewer in CATC mode expanded information triplicated on screen
    - ST5639 Scrolling on an exported Initiator Emulator project file is extremely slow
    - ST5455 When cascading Port Alias only works for the first four ports
    - ST5454 Exporting trace to IE proceeds very slowly if the trace contains commands with large payloads
    - ST5379 Trainer can only iterate through 8 bit values, not 10 bit ones
    - ST5309 When payload data field of SAS Verification "Test 10.1.5_Second.sac" test is modified and refreshed byte order is now backwards
    - ST5241 Analyzer has long lock time when SSC down spread peak occurs within 4uS of slumber recovery
    - ST5002 When Infusion Event and Action counters are used simultanously the end result is not quite the product of both
    - ST4886 cannot use 10B button to see raw format for invalid dwords and Unknown primitives. in the column view
    - ST4858 Histogram view: X and Y legend info is needed.

5.19. Version 4.10

- This is release 4.10 Build 427 of the SAS/SATA Protocol Suite™ software.
- This release contains the following components:
    - SAS Protocol Suite™ Version 4.10
    - SATA Protocol Suite™ Version 4.10.
    - CrossSync™ Version 2.11.
    - STATS™ Version 1.50.
- This release includes the following updates:
- Added Features:
    - Analyzer Network (Device Selection) – This allows connecting and disconnecting Analyzers on the fly, without restarting the

application.

NOTE: This requires updating the Firmware component in the analyzer over **USB,** as the previous Firmware will not report any analyzer connected over Ethernet to Software version 4.10 and up.

- ST4330 Time stamp resets and start over from zero after only 16+ hours – can now run for over 10 days.
- ST4069 FR - Add additional configurability to Packet View - We added a condensed mode (available in viewer configuration dialog) to facilitate foreign OS viewing.
- ST5672 FR - [ATS] Allow to manipulate .sac project file's trace file name – We added a SetTraceFileName function to set trace file name.
- ST5147 FR - Need to support SBC-3 and SBC-4 SCSI commands, especially Read/Write 32 - Now we support all SBC3 commands in Analyzer and InFusion. SBC-4 support will follow.
- ST3220 GUI enhancements for SATA Compliance, SAS Verification - Progress bar added to compliance and SAS verification tests
- ST5110 FR - Add Protocol Error type for SAS to detect bad delimiter / unexpected primitive
- ST4216 FR – Allow decoded SATA Identify Device payload to be exported to a text file
- ST5239 FR - Prevent M6-2 Infusion from inserting HOLDA between CRC and EOF primitives
- ST3939 FR - Add "Quick Find/Filter/Hide" right-click dialog

- Issues Fixed are:
  - ST4361 In Packet View CRC is put into the Payload field. (Payload was interrupted by long HOLD/HOLDA sequences.)
  - ST4886 Cannot use 10B button to see raw format for invalid dwords and Unknown primitives in Column View - We now show the 10b values for ANY and ALL dwords, not just those inside of frames.
  - ST4597 Add "Remove Primitive" option to Sierra InFusion to make backward compatible with InFusion 1 scenarios.
  - ST4842 SAS Verification test suite does not support drives with block sizes other than 512 bytes
  - ST5726 [ATS] Find Device defaults to 1.5G speed on all ports
  - ST5127 Find Device does not extract enough information for successful Target Emulation

- ST4459 Analyzer captures 6G to 3G speed change in one packet so 3G Align primitives are not shown
- ST6084 [ATS] The M6-2 Model does not work with the ATS/Anaylzer/Trainer system. We added a new setting to not change SAS address in trainer script
- ST6056 [ATS] While ATS is executing (RUN ALL) mulitple Trainer tests, a Trainer script (.ssg file) was corrupted.
- ST5385 Jammer keeps beeping even though nothing is triggering it to make it do so
- ST3291 [STX231] HE delay of 10 seconds after issuing COMRESET
- ST5762 Misspelling in Field List View
- ST5207 Various crashes and problems with 4GB trace converted from 3.80
- ST5105 Issues with TxVout & Preemphasis in Simulation Mode
- ST6717 App crash occurs when ADC-3 SCSI Command Pattern trigger is selected

5.20. Version 4.00

- This is release 4.00 Build 385 of the SAS/SATA Protocol Suite™ software.
- This release contains the following components, which are necessary for the operation of the product:
  - SAS Protocol Suite™ Version 4.00.
  - SATA Protocol Suite™ Version 4.00.
- This release includes the following updates:
- Added Features:
  - Automated Test Suite (ATS) – installed separately, launches the SAS Protocol Suite application.
  - Added 2 new API functions to facilitate implementing time-outs (`IsRunning`) and loading Trainer Genration options (`LoadGlobalGenOptions`).
  - Added 2 new VSE functions to facilitate working with external files (`ReadBin` and `WriteBin`).
  - CrossSync - LeCroy's analyzer synchronization solution that enables time-aligned display of protocol traffic from multiple daisy-chained analyzers.
  - Verification Tests Suite: NACA test has been revamped.
  - Added capability to upgrade CATC-Sync expansion cards.
  - Added support for Window Server 2008. Note: in some cases the analyzer will not be seen by the application when using Ethernet, without manipulating the firewall and/or opening required ports. We recommend setting the settings below to "Yes":

Windows Firewall Properties -> Public Profile -> Settings (Customize) -> Display a notification.
Please see the manual for more information.
    - Renamed STX M6-1 to Sierra M6-1, to better reflect the fact it is part of the Sierra family of products in terms of capabilities and technology.
    - ST4508 Need to update API examples for ability to compile under MSDN 2010
    - ST2309 FR - Host Emulator: Need to be able increment Data Frame Payload Size: A new command was added the Event menu to set, increment or decrement the payload size.
    - ST756 FR - Need an 'edit bookmark' button on the bookmark dialogue.
    - ST4622 FR - For Device Emulator: Need to be able to set bit #2 of word #86 ("Removable Media Feature Set")
    - ST4509 Need to have ability to resize windows within the application running and also to expand windows to increase view of fields.
    - ST4406 Need TE to support all SBC-3 "Commands for direct access devices".
    - ST4259 FR - Device Emulator: Increase writable buffer size field – now is about 3.5GB.
    - ST4180 FR - More control over the way Data Payload information is displayed – control number bytes per line.
    - ST3961 FR - Add Packet View-like Hide/Show function to permanent Software Settings page for SPREADSHEET VIEW (select columns to hide/show).
    - ST3217 FR - SAS Initiator Emulator should support a queue depth of 32 commands.
- Issues Fixed are:
    - ST5240 Analyzer does not properly decode 32-bit SCSI commands.
    - ST5124 User's Manual does not include detailed descriptions of the protocol errors we flag.
    - ST5097 TxVout & Preemphasis SAVE dialog SAVE button is incorrectly named as OPEN.
    - ST4755 HOLD/HOLDA Response Timeout feature only works in one direction.
    - ST4673 Trainer appears to send fewer Align1 primitives than scripted.
    - ST4648 Trainer "Wait For" very slow.
    - ST4623 Trainer sends single Align primitive near completion of speed negotiation.
    - ST4543 Error LEDs only light up when recording.
    - ST4527 Infusion injects CRC into wrong FIS

when more than 100 HOLDs occur in proceeding Data FIS.
    - ST4461 Software Settings window is truncated in Windows XP Japanese version.
    - ST4419 Error field Tool tip for 0xA1 Set Device Bits FIS is incorrect.
    - ST3132 Selecting a pattern on the 2nd screen caused a crash.

5.21. Version 3.92

- This is release 3.92 Build 359 of the SAS/SATA Protocol Suite™ software.
- This release contains the following components, which are necessary for the operation of the product:
    - SAS Protocol Suite™ Version 3. 92.
    - SATA Protocol Suite™ Version 3. 92.
- This release includes the following updates:
- Added Features:
    - ST4999 FR - VSE: Search script selection must search down multiple level directories
    - ST4622 FR - For Device Emulator: Need to be able to set bit #2 of 0xEC word #86
- Issues Fixed are:
    - ST5017 "After Jammer" does not show in App level
    - ST5004 Cannot set Primitive Timeout value above 65000
    - ST5003 DE - General Inject Periodic error function is not working
    - ST4957 Issues found with the SAS Verification tests 7.4.4 and 7.4.6
    - ST4696 Sierra SAS analyzer software not showing the correct symbol decodes
    - ST5118 Application hangs for 4 minutes when connecting to STX analyzer over Ethernet
    - ST4979 Host emulator stops working for some port configurations.
    - ST5172 Protect installation against a missing semi-colon delimiter in System Variables path string.
    - ST5152 SATA Installation failed if upgrading from 3.85 using web installer.

5.22. Version 3.90

- This is release 3.90 Build 349 of the SAS/SATA Protocol Suite™ software.
- This release contains the following components, which are necessary for the operation of the product:
    - SAS Protocol Suite™ Version 3. 90.
    - SATA Protocol Suite™ Version 3. 90.
- This release includes the following updates:
- Added Features:
    - Added Pending I/Os to Statistical Report and

metrics (in Packet View). This includes maximum Pending I/Os in duration of command. Graphic representation of Pending has also been added. Pending I/Os are calculated from the captured trace, so they may be inaccurate at the trace start and end, if there are clipped commands.

- New “QuickView” mode, ON by default, leaves data in the recording buffer, thus shortening time to view trace. Impact is most noticeable when using the Gigabit Ethernet interface.
- VSE (Verification Script Engine) – See new Manual in SAS Protocol Suite\Documents directory.
- InFusion changes: scenarios are no longer stored in the analyzer Flash, so execution is faster. Some GUI changes around this feature.
- ST723 FR - Primitive jumping in Column View: Now you can jump to next HOLD/HOLDA or R_IP after you right-click a dword inside a frame.
- ST4484 FR - Allow User script logic to notify completion status in Trainer. Syntax: “exit(<code>)”
- ST4483 FR - Allow External Power Expansion Card manipulation from Trainer. Syntax: "Power_Expansion_On" and "Power_Expansion_Off"
- ST4577 Emulator issue (copy payload): Now the command copying in IE/HE will include all those defined fields, payload, SAS address and command option.
- ST4256 FR - Need Device Emulator to support ATA8 Password Security Support. Six required password security ATA8 commands which are Security Disable Password, Security Erase Password, Security Erase Unit, Security Freeze Lock, Security Set Password and Security Unlock have been added in DE Error Injection's ATA Commands list.
- ST4135 FR - Add ability to have analyzer recording stop when "Stop Exerciser" command is issued by Host Emulator

- ST4096 FR - Add "Clear Addresses" or "Refresh" ability to Find Device. New settings "Reset (clear) the list of found devices" and "Refresh (append to) the list of found devices" have been added into SAS suite's Software Setting
- ST4061 FR - Add support for 2 new ATA8 commands in Device Emulator. 0x06 DATA SET and 0x45 WRITE UNCORRECTABLE

EXT were added.
    - ST4007 Two enhancements to Initiator Emulator SPC4 SEND DIAGNOSTIC command functionality: "Payload Data" file for the SEND DIAGNOSTIC command is taken from the Software Settings. The data is automatically refreshed on change.
    - ST3811 FR - Add additional columns ABRT and UNC to Spreadsheet View
    - ST3716 FR - Add "Tile Views" feature
    - ST3714 FR - CTRL/TAB to toggle between the trace windows
    - ST3644 Add software version and build number information to SAS Verification and SATA Compliance test results documents
    - ST3578 FR - Target Emulator needs to support return of VPD page information in response to Inquiry command
    - ST3533 FR - Make Device Selection Dialog pop up every time app is opened
    - ST3532 FR - Add maximum and average queue depth to Statistical Report
    - ST3490 FR - Have Tag No. and LBA value displayed in Text View
    - ST3277 FR - Need to support Emulation for the following new commands found in the SATA 3.0 specification
    - ST3069 FR - Allow using IE and TE simultaneously in Sierra M6-4 and Sierra M6-2
- Issues Fixed are:
    - Cascading issue with Voyager. Sierra M6-4, Sierra M6-2 and Sierra M6-1 can now trigger and be triggered by USB Voyager and Advisor T3 platforms.
    - ST4573 (Trainer) Delay of 500ms to send COMINT after wf_COMWAKE
    - ST4589 Generator transmission byte order reversed when scrambling off
    - ST4573 Delay of 500ms to send COMINT after wf_COMWAKE
    - ST4572 After sending invalid characters, trainer send positive disparity when it should send negative disparity
    - ST4571 Bug in Trainer SMPFramesDecl.inc file caused frame to not be transmitted as composed
    - ST4504 SATA DEVICE speed negotiation issue
    - ST4337 Host Emulator gets stuck sending HOLD and never stops
    - ST4606 Tag number for 0x41 DMA Setup FIS is not always shown in Spreadsheet View

- ST4569 SATA DE returns 0xA1 Set Device Bits FIS with Status Hi register value of 00
- ST4465 Application crashes when Soft Reset is chosen for pattern trigger
- ST4155 Windows 7 does not recognize DE when running in default ATAPI mode
- ST4011 4-port Device Emulator sometimes fails to reconnect on port 3 when stopped and re-started
- ST4539 On Statistical Report view Cmd Min Read (MB/S) Performance is always reported to be zero.
- ST4331 Trainer sometimes sends only 4 or 5 data bursts for COMWAKE
- ST4270 "Set As Default" for new ATAPI User Defined Decoding feature does not work
- ST4217 DMA transfers of 8KB or less must be made in a single transfer
- ST4460 SATA Compliance - SSD fails NCQ-04 test apparently because test ends before the device has responded

5.23. Version 3.85

- This is release 3.85 Build 306 of the SAS/SATA Protocol Suite™ software.
- This release contains the following components, which are necessary for the operation of the product:
  - SAS Protocol Suite™ Version 3. 85.
  - SATA Protocol Suite™ Version 3. 85.
- This release includes the following updates:
- Added Features:
  - In many actions that may take longer processing (for larger traces), a progress bar and “Cancel” button have been added
  - ST3712 FR-Simulation Mode tweak: automatically sense whether or not you are connected to hardware
  - ST3100 Support 4 new SAS Power Management primitives in all products-SAS Power management primitives have been added to emulators / Analyzer
- Issues Fixed are:
  - ST4270 "Set As Default" for new ATAPI User Defined Decoding feature does not work
  - ST4190 SSP Response Data Response Code field is not up to current standard
  - ST4132 Invoking Infusion when running Vista 64-bit causes app crash 80 to 90% of the time
  - ST4112 When DATA SET MANAGEMENT / TRIM command is exported to Host Emulator data payload is omitted
  - ST4079 SATA Compliance - Devices erroneously fail IPM-11 test because they send COMWAKE before the Host does

- ST4064 Data Report issues (and adding progress bar for Data report)
- ST3997 SAS Verification - 2 or 3 possibly outstanding issues with 10.1.5 test
- ST3973 SATA Compliance - ATAPI drive customer requests change to DOF-01 test
- ST3950 Trace viewer GUI has some issues
- ST3929 Byte order in new Sierra Trainer is backwards from old CATC Trainer
- ST3924 “0x01 : Normal Output” Status field in Packet View does not actually mean anything
- ST3918 SymChain invalid_dword function is not working properly
- ST3910 If LBA is zero it does not appear in Spreadsheet View.
- ST3814 SAS Verification - 6.7.2.1 to 6.7.2.4 tests fail because "DUT transmits 59 0000_0000 dwords after TRAIN DONE
- ST3748 When multiple ports of Device or Target Emulator are being run the default serial numbers and addresses of each port should not be the same
- ST3572 IPM-02 Host test fails for "No host initiated request was completed" but traces show otherwise.
- ST3543 Host Emulator issues COMRESET instead of COMWAKE to bring device out of slumber
- ST3290 Host side IPM-04 results in "Error" but should be Pass.
- ST3191 Payloads of individual FISes for large data transfer exceed 8192 byte limit.
- ST2635 Initiator Emulator: SCSI SBC3 commands not sorted correctly
- ST2622 Advanced Find function does not work for "Unknown" commands
- ST2069 Pack Primitives option on Software Settings dialog box seems to always be on, whether it is checked or not.
- ST1989 Device Configuration Set is located incorrectly in the ATA pull-down menu under host emulation with lots of other commands

5.24. Version 3.80

- This is release 3.80 Build 275 of the SAS/SATA Protocol Suite™ software.
- This release contains the following components, which are necessary for the operation of the product:
  - SAS Protocol Suite™ Version 3. 80.
  - SATA Protocol Suite™ Version 3. 80.
- This release includes the following updates:
- Added Features:
  - ST3279 FR - Default file open filter affects usability

- ST3246 FR - SAS Verification tests - NACA
- ST3243 FR - Soft Reset protocol sequence collapse/expand
- ST3242 FR - Primitive Response Timeout counter to 32 bit, separate X_RDY/R_RDY counters
- ST3194 FR - Increase granularity of Host Emulator PMREQ initiation control from milliseconds to microseconds
- ST3149 FR - need progress bar while saving a large trace
- ST3138 FR - Generate Performance Analyzer output report in text/excel (now found in Setting page)
- ST3134 FR - Need option to display multi-byte fields in ASCII as well as hex/dec/bin
- ST3110 FR - In Spreadsheet View, double-click on frame cell to bring up Field List
- ST3075 FR - Need to provide Spreadsheet View export to Excel/CVS Time stamp, Relative time and Delta time in same format. User can now specify time format (right click popup menu on time fields). Set format of time, then all times will be shown in same format, and then use ‘Save As’.
- ST2940 FR - Sample Properties should specify HW and License info
- ST2829 FR - Allow NOT detecting the "RD Error" or "Code violation Error" in certain cases
- ST2782 FR - support ATA-8 in device emulator. Now device emulator support ATA-8.
- ST2047 FR - Host Emulation - Add an option to generate a HARD RESET after a command
- ST2007 FR - Triggering on data pattern needs to include a "NOT" condition
- ST1839 FR - Add All Tag values closed by Set Dev Bits in Spreadsheet view
- ST1670 FR - Add Stream Commands to the Statistical Report - By enabling the "Configuration menu > Software Setting > Sample viewer > Create statistical report read/write page", the Read/Write Stream DMA command can be shown in statistical report's Read/Write Page.
- ST1241 FR - Save Probe Settings, Factory Default Setting, etc. for TxVOUT and Pre-emphasis
- ST0952 FR - TX Vout settings changes

- Issues Fixed are:
  - ST3934 If On Payload Match/Mismatch branch works the opposite of how it should
  - ST3888 Sometimes RD (#2) errors that are flagged in Packet and other Views do not

show up in Column View.
    - ST3816 SATA Device Emulator does not allow drive partitioning if NCQ is enabled.
    - ST3801 SAS Verification: SSD fails 10.1.5 and gets N/A result for 7.4.1 through 7.4.6.
    - ST3747 Device Emulator does not keep serial number on channel D3
    - ST3694 Application crashes when "Cancel" button is pushed when uploading a large, highly-filtered trace.
    - ST3610 Specifying value in DE Field of Frame dialog causes hang
    - ST3561 Target Emulator responds to Discover command with incorrect SAS address
    - ST3548 Analyzer sometimes misreads payload length at 6G
    - ST3505 Initiator Emulator: Data payload sent to device from bin file gets corrupted
    - ST3488 Device Emulator: "Destroy" SActive field bits option does not work.
    - ST3398 Support 06h DMA DATA SET MANAGEMENT and TRIM command (ATA 8) section 7.10
    - ST3304 request a SAS Address Pair Spreadsheet report or view. You can find it in File menu when text view is open.
    - ST3291 HE delay of 10 seconds after issuing COMRESET
    - ST3214 Sierra M6-4 uses Align3 for OOB instead of Align0
    - ST3203 In Target Emulator selecting tag error on XFER_RDY yields tag error on Response frame as well
    - ST3201 0x4A Get Event/Status Notification ATAPI command Notification Class Request and Notification Class fields are confused.
    - ST3180 When "Exclude Payload except xx Dwords" pre-capture filer is used the filtering is not always consistent
    - ST3139 Sierra does not show Host D10.2 during COMINIT sequence
    - ST2077 SSP frame format bits in Byte 10 are not decoded as per the SAS2 spec
    - ST2058 Need the ability to filter Primitives from the display.

5.25. Version 3.71

- This is release 3.71 Build 244 of the SAS/SATA Protocol Suite™ software.
- This release contains the following components, which are necessary for the operation of the product:
    - SAS Protocol Suite™ Version 3. 71.
    - SATA Protocol Suite™ Version 3. 71.
- This release includes the following updates:

- Added Features:
  - Support for Windows Server 2003
  - ST3200 Need ability to export Packet View to Excel (we added a check box to save as duration in save as text/excel dialog)
  - ST2808 User Defined Decoding: decode new ATAPI vendor-specific decode feature
  - ST3349 Need API method to select network adapter
- Issues Fixed are:
  - SAS Verification tests: 7.1.1, 7.4.1 - 7.4.6 and 10.1.5 (ST3305) (changes applied based on customer request).
  - ST3197 6G traffic appears to have missing dwords plus initiator and target views appear to be out of synch.
  - ST3222 "Save Filtered Sample" function does not work for filtering ports
  - ST3283 Payload is backwards when exported to Initiator Emulator script
  - ST3300 SATA Compliance: Lengthen IPM tests power cycle
  - ST3334 SATA Compliance: Failure to do proper clean up in SSP-02 test results in failure of SSP-06 test
  - ST3483 SATA Compliance: Crash on invoking Compliance Test
  - ST3399 Frequent hang issues when taking 16GB traces

5.26. Version 3.70

- Added Features:
  - Support for Windows 7 OS
  - Performance Analyzer: displays various performance metrics in a graphical interface in real time.
  - ST3100 Support 4 new SAS Power Management primitives in all products (Analyzer and Trainer only – Emulation and InFusion to follow)
  - ST3098 Add CATC Command Metrics to STX/Sierra Packet View.
  - ST3024 Go To Time Stamp function currently has 1000s limitation.
  - ST3011 Option to turn off Column View warning message.
  - ST3000 Ability to add SActive field to Spreadsheet View for export to a text file.
  - ST2995 Add hard re-set function to (Sierra InFusion and) InFusion API.
  - ST2979 Configure LBA/Sector # field in Spreadsheet view to be decimal.
  - ST2866 Cannot change Association field in Target Emulator.
  - ST2828 Display "Before JAM" and "After

JAM" on CATC navigation view, display a scenario name of the executed Jammer scenario on the output window of InFusion function.
    - ST2811 No status is given when saving trace as a text file.
    - ST2799 Target Emulator does not fully support Smart Read Data command.
    - ST2782 Support ATA-8 in device emulator (Long payload only)
    - ST2682 Need capability to turn off SATA Hold-Handling in InFusion.
    - ST2583 Need SW ability to toggle power expansion card output.
- Issues Fixed are:
    - ST3300 SATA Compliance: lengthen IPM tests power cycle to 5 seconds for SSD drives.
    - ST3281 ST.exe: Cannot run PA for the 2nd time.
    - ST3267 ST.exe memory leak after running compliance test.
    - ST3266 SW hang on SMP decoding.
    - ST3253 PA / HE project: does not work correctly.
    - ST3248 SW hang on updating the sample file in Windows 7.
    - ST3247 SATA SW: Stop button is not active for PA.
    - ST3239 windows menu is hidden while PA is running.
    - ST3236 SW hang if try to start the trainer while having performance analyzer running.
    - ST3219 SATA Compliance IPM-05 and IPM-06 don't comply with latest UTD
    - ST3212 API-There seems to be a memory leak with calling the SetAsDefault ( ) and ActiveDevice ( ) API functions.
    - ST3211 InFusion API crash
    - ST3202 Sierra SATA Host Emulator does not negotiate to highest speed supported by device.
    - ST3199 Power expansion card and jammer cannot be used together
    - ST3198 When in Statistical Report View invoking Print Preview causes app to close.
    - ST3173 InFusion causes SAS Align Errors
    - ST3145 Windows 7 users need to run in Normal mode
    - ST3137 SMP Discover LIST (SAS2-R16) not decoded
    - ST3136 SMP discover fields not decoded shown as un-supported
    - ST3135 Spec view for SMP request frames incorrect
    - ST3133 SMP command Discover List (and

others) are not shown correctly in statistical report
- ST3126 SAS Verification - Clear ACA before each test
- ST3120 Performance Analyzer - various problems
- ST3109 Jammer drops dwords, causing CRC errors that reduce throughput and eventually drop the line
- ST3094 One must have administrator rights to run SW on Windows 7.
- ST3091 Sierra Trainer doesn't handle CRC generation as 10k Trainer
- ST3073 When the Sierra InFusion is controlled using the API one cannot also use analyzer nor emulators.
- ST3052 Trainer scripts generates incorrect Hashed Address
- ST3047 Old CATC Trainer scripts do not run as expected on Sierra Trainer.
- ST3027 DOF-02 SATA Compliance test erroneously fails device
- ST3025 When Trainer is sending train primitives at 1.5G analyzer does not see 3G train primitives from host.
- ST3020 Jammer changes R_IP to R_RDY and HOLDA to ALIGN when PATA to SATA dongle is used.
- ST3010 Save only failed traces feature of SATA Compliance test suite does not work properly.
- ST3007 Duration for Identify Device command (which took a long time to complete) incorrectly displayed
- ST2998 SASEngine.dll cannot be referenced in Visual Studio
- ST2992 Running in JA mode. Initiator shows SATA_HOLDA before Target has issued SATA_HOLD (fixed on Sierra M6-2 only)
- ST2988 Export to generation file: Payload bytes order are reversed.
- ST2986 Trainer: crash on exported Trainer script file
- ST2985 Compliance: GTR-05 needs increased time out to pass some devices
- ST2967 Set trigger event from trace: Channel(s) to trigger is not included in AJ configuration.
- ST2961 Asking to save for trainer script before closing App: App should not close if cancel option is selected.
- ST2960 Trainer: At some point, trainer stops sending data.
- ST2949 Segmented memory does not work well with auto run (crash).

- ST2946 Selecting text in InFusion scenario caused a crash
- ST2945 SATA compliance test: Failed on NCQ tests for SSD drive.
- ST2928 SATA Protocol Suite failed to discover Sierra M6-2 over Ethernet on Vista 64 system.
- ST2927 Starting performance analyzer caused disconnection of SATA 3G device
- ST2920 Aligns shown in trace are not reliable
- ST2919 SATA Compliance Test Results Report issues
- ST2916 Can't export command to HE script
- ST2903 Cannot export ATAPI 0x1E Prevent Allow Medium Removal command to Host Emulator
- ST2844 SW does not update the total amount of memory available for recording after ports setting is changed.
- ST2836 Column "Save as Text/Excel" function does not run to completion
- ST2834 One can no longer open multiple instances of the application
- ST2813 Scenario creation in Windows Korean is messed up
- ST2747 InFusion scenarios created with v3.20 and earlier software have incompatibility with 3.40 and later software.
- ST2706 When filtering XXXX and primitives inside SATA/STP frames, they still get written to memory
- ST2575 SW does not allow to fix a typo in trainer script.

5.27. Version 3.60

- Added Features:
  - Support for Windows 7 OS (Beta level)
  - NCQ update (new NCQ SATA 3 commands have been added to the Analyzer and to the Host and Device Emulators).
  - Copy/Paste of InFusion scenario and batch scripts is now supported. You can now copy/paste entire scenario, instructions and states inside scenario and instructions inside batch scripts.
  - Multi port trainer support.
  - Network adapter selector has been added to device list. It is applicable for multi adapter machines.
  - Trainer: Variables and some new instructions such as ‘while on variable’, ‘if on variable’, have been added.
  - Trainer Scripts utilizing the new Trainer

capabilities to generate high throughput SATA traffic, and to demonstrate the new Trainer commands have been added.

- Issues Fixed are:
  - ST2747 - InFusion scenarios created with v3.20 and earlier software have incompatibility with 3.40 and later software.
  - ST2741 - Opening a particular InFusion scenario causes the software to shut down. On Windows Japanese.
  - ST2723 - Help -> Help Topics grayed out in InFusion pane.
  - ST2884 - Saving trace from Link xxxx to Link xxxx causes application to crash.
  - ST2839 - Sierra InFusion API missing USB support.
  - ST2836 - Column "Save as Text/Excel" function does not run to completion.
  - ST2838 - SAS Verification - needs Trainer license for some tests.
  - ST2814 - SATA Compliance on 231 fails SSP-02.
  - ST2505 - SATA Compliance tests pass 2.8, fail 3.35.
  - ST2515 - Column View Sometimes displays wrong data
  - ST2638 - LED status does not show correct for 4 port infusion (JJJJ) configuration
  - ST2659 - Sierra InFusion gets confused when issuing HOLDA for too long
  - ST2683 - Repeated read DATA frame when using target emulation
  - ST2931 - sw crash caused by file opened twice.
  - ST2923 - SAS Verification: Many tests result in Failed or N/A because of trainer does not connect.
  - ST2901 - USB blue screen on STX 431 on analyzer disconnect.
  - ST2912 - Cannot inject 8B/10B error.
  - ST2913 – injecting RD error on an event doesn’t appear to work.

5.28. Version 3.52

- Added Features:
  - Added support for Windows 7 OS (Beta level)
- Issues Fixed are:
  - The SNW manipulation feature is added to the Analyzer/InFusion configuration on Sierra M6-2.
  - The two ports InFusion issue when both ports are activated is fixed.
  - SATA Trainer Generator does not link with SAS host.
  - API issue that prevented connection to the

board when using Debug Mode

5.29. Version 3.50

- Added Features:
  - Quick View. Quick View provides for a much faster presentation of frame-level detail while the application is building more advanced views and post-processed reports. Quick View can be disabled in the Software Settings dialog under the Configuration Menu.
  - SAS Verification Suite: An automated series of Pass/Fail tests based on the CTS scripts originally written for the CATC SASTracer. This functionality is included when purchasing the Initiator Emulator; or can be purchased stand-alone as a licensed feature. This is only available for Sierra M6-4 and Sierra M6-4.
  - A new port configuration for the Sierra M6-2, which provides for simultaneous jamming and analyzing on two ports.
  - SATA IO Compliance Tests have been updated to support UTD 1.4, as well as UTD 1.3.
  - Power On/Off instruction has been enabled for Sierra M6-2 and M6-4 Host Emulators.
  - Batch Mode has been added to InFusion, to allow conditional execution of multiple scenarios in sequence.
  - SNW (Speed Negotiation Window) Impairments have been added to InFusion.
  - Export to text has been added to “Find Device”.
- Issues Fixed are:
  - SATA Compliance Test Suite hangs on IPM-09 when “Save Only Failed Traces” box is checked.
  - Duplication of ATAPI tests for SATA Compliance
  - Vista issues

5.30. Version 3.40

- Added Features:
  - Cascading support for Sierra M6-2. Now Sierra M6-2, Sierra M6-4, STX A6-4, STX A6-4S, STX460 and STX430 can all be cascaded together (up to a total of 8 units). The cascading order for mixed products must be: Sierra products first, STX 430 last, and other STX products in between (as applicable).
  - CATC API support has been added (see SASSuite_AutomationManual.pdf).
  - InFusion Insert/Delete functionality
  - Ability to Create Trigger from trace.

    - Find Device now finds devices on any port, not just port 1.
    - “Save filtered sample” option has been added to “save as” feature in trace viewer.
    - Enhanced decoding of following SMP commands: SMP Discover List, SMP Report Self-Configuration Status, and SMP Report Expander Route Table.
    - Spec View - open it in right click pop menu in trace viewer.
    - Decoding of two user defined SCSI commands: Skip_Write=EA & Skip_Read=E8. These commands have been added to the initiator emulator too.
    - Sierra M6-2 now supports A/T (Analyzer/Trainer) port configuration.
    - Alias name is now supported for all platforms. Note: spaces are not allowed in the alias.
    - Search on Hash address added to search dialog in viewer.
- Issues Fixed are:
    - Improved lock time on STX 460, A6-4 and A6-4S platforms
    - Occasional error in time stamps, which also caused missing LBAs
    - Blue screen crashes on STX systems connected via USB should now be reduced.
    - Data pattern trigger is now settable in STP Frame FIS type 0x46.
    - Trainer script SMPFramesDecl.inc no longer shifts the header by one byte.
    - Trainer scripts developed for the UPAS 10k platform now work correctly on Sierra platforms.
    - CATC view no longer shows incorrect errors.
    - Bottom scroll arrow is no longer missing when cascading trace windows.
    - An issue with Find Device.

5.31. Version 3.37

- Added Features:
    - None
- Issues Fixed are:
    - Fixed ‘Memory Optimization’ functionality with Sierra M6-2 8GB configuration and Sierra M6-4 16 MB configuration
    - Fixed a rare USB issue
    - Fixed installation issue on Windows XP SP3
    - Fixed issue with ‘Check for Updates’ feature

5.32. Version 3.35

- Added Features:
    - New Port Configuration dialogs use graphics.
    - Windows Vista operating system is supported.

Note: If the SAS or SATA software does not open, right-click the SAS Protocol Suite or SATA Protocol Suite icon and select Properties to display the Properties dialog. Select the Compatibility tab. Check to Run this program in compatibility mode for Windows XP.
    - Analyzer, Emulator, Trainer, and InFusion work on the Sierra M6-2 platform.
    - CATC SYNC expansion cards are supported on Sierra M6-4, so you can cascade Sierra M6-4 (and Avalanche) platforms with CATC expansion cards.
    - STX A6-4S platform is supported.
    - Memory Assignment re-assigns memory to allow larger sample sizes in cases of unequal load distribution on ports. The buffer status indicator has been changed to show buffer indicator per virtex, not per port. The Memory Assignment option is in the Software Settings dialog.
    - Lock time management has been improved on both Sierra M6-4 and Sierra M6-2.
    - SATA compliance has been upgraded to UTD Rev 1_3_V1_01RC, and the following tests have been changed: GTR01, GTR02, NCQ02, SSP06, IPM03, IPM08, and IPM11.
- Issues Fixed are:
    - Various bug fixes.

5.33. Version 3.30

- Issues Fixed are:
    - Fixed the issue with FX20 failure to configure after flash up-date
    - Fixed the issue with failing to filter Train & Train_Done
    - Various bug fixes

5.34. Version 3.21

- Issues Fixed are:
    - Issue with cascading Jammers is resolved.

5.35. Version 3.20

- Added Features:
    - Jammer functionality is extended to support 4 ports at 1.5G, 3.0G & 6.0G data rates.
    - Up to 2 ports of Jammer can run simultaneously with up to 2 ports Analyzer(s) and / or Emulator(s). This is offered in each of SAS & SATA software.
- Issues Fixed are:
    - Issue with Jammer A/J/A case on Port 3 & 4 in SATA is resolved.
    - Logging is supported in the Jammer.

5.36. Version 3.10

- Added Features:
    - Jammer functionality that was offered in InFusion product is now provided in Sierra Jammer and supports 1.5G, 3.0G & 6.0G data rates.
    - Jammer function (InFusion) can run one port while Analyzer(s) and / or Emulator(s) can run on other ports, simultaneously. This is offered in each of SAS & SATA software.
- Issues Fixed are:
    - Error injection of CRC over mixed SAS & SATA traffic is fixed in Jammer.
    - Train & Train Done primitives are supported in Jammer.

5.37. Version 3.00

- Added Features:
    - Four Channel Emulation for Initiator, Target, Host and Device supporting up to 6Gig data rates in Sierra M6-4
    - Support for Gigabit Ethernet in Sierra M6-4
    - Auto-speed negotiation for SATA 3.0/1.5Gig

5.38. Version 2.80

- Compression of successive primitives has been added. Software is now able to compress primitives with IDLE data in between.
- Support for triggering and decoding of SAM-4, SPC-4, MMC6, ADC3, OSD-2, SMC-3 and SBC-3 commands.
- Ability to send SAM-4, SPC-4, MMC6, ADC3, OSD-2, SMC-3 and SBC-3 commands are now supported in Initiator Emulator.
- Support for triggering and decoding of NV CACHE commands.
- Support for NV Cache commands has been added to Host Emulator.
- SAS SW now fully decodes and displays SNW traffic in both the Waveform and Packet views. SNW-3 capabilities bits are now decoded. TRAIN and TRAIN_DONE primitives also added to Waveform view.
- Performance of Host/Initiator Emulator is increased to address SSD market.
- Ability to choose commands based on Hex value added to Host/Initiator Emulator.
- Multilevel Filtering now has ability to choose pair address for easier use.
- Ability to send a file instead of specifying pattern for BIST command with Host Emulator
- Decoding of obsolete ATA commands.

- Complete decode of SATA IDENTIFY/IDENTIFY PACKET response data.
- Option to loop errors in Target Emulator.
- Option to randomize errors in Host Emulator.

5.39. Version 2.72

- STX primitive trigger in cascaded mode issue is fixed.
- 2 GB memory module support has been added to STX460, resulting in 8GB analyzer system memory support.
- Probe setting issue on STX 460 has been fixed
- SATA compliance tests have been updated based on MOI version 0.99c.
- Issue with IPM -11 has been fixed for SATA compliance.
- Name of fields in Register Host To device frame have been changed based on SATA spec 2.6.
- Issue with (SATA) viewer stops showing COMWAKE when capturing Power Mgmt is fixed.
- LBAs are shown in spreadsheet view for all LBA access ATA commands.
- Auto Detect is provided in STX460 when the unit is licensed for 3G SAS recoding.

5.40. Version 2.70

- Display of scrambled Idle pattern has been added. There is an option in capture project setting page named "Show XXXX value", when this option is selected, the value of XXXX data is shown in the viewer for SAS & SATA application software.
- You can set viewer display mode to “Like CATC viewer”. There is an option in software settings named “Look like CATC view” selected by opening software settings dialog form configuration menu. When this option is checked, the packet view will look like CATC packet view.
- "Set as Default" has been added to SAS address alias name dialog. When you set alias name for specific SAS address and press "Set as default" button, it will be applied on current trace and all traces that will be captured.
- All features of spreadsheet view have been implemented in text view. There are a lot of “Go to” operations in right click pop up menu of text view that are implemented in this release.
- New SAS 2 SMP commands have been implemented. You can send new SAS 2 SMP commands by initiator emulator and you can see complete interpretation of them in viewer too.
- “AND” operation has been added to filter dialog.
- Multi level filtering has been added to filter dialog. You can do multi level filtering as post process on the viewer. Please note that when you use multi level

filtering, the given filter options will be applied on the results of previous filtering process.

- Kill button has been added during uploading and extraction process. When you check “The cancel button kills uploading/extracting sample file” in software settings dialog, then when you press “Cancel” button during uploading trace file, it is applied immediately after pressing it.
- All SATA compliance tests have been updated according to UTD version 1.2.
- Emulator multiplexing feature has been added on STX460 with below stipulations:
- Both host emulator and device emulator support Muxing.
- STX460 can have 2 narrow ports emulator with no muxing -OR- a 1 port emulator with muxing
- When you use muxing in emulator (host or device), there is no analyzer support on ports 1 and 2.
- Multi port emulator support has been added on the STX460.
- Both host emulator and device emulator support multi port.
- When you use Multiport in emulator (host or device) on STX460, there is no analyzer on ports 1 and 2
- Each SXT460 is limited to 2 emulators running simultaneously.
- Emulators ports both have to be either “Host Initiator” OR “Target” only.
- The Memory of each Emulator port is increased to 511 MB. It means you can write exerciser script up to 511 MB. Please note when you use single port Initiator emulator/Analyzer project, the sampling memory size is limited to one memory module on STX460 board and the emulator memory will still be 511 MB.

5.41. Version 2.64

- Support for STPHY3 Rev C
- Fixed application crash in target emulator during error injection by command number.
- Multiplexing has been added to SAS software.
- Auto speed detection has been added to SAS for analyzer and emulators on STX460.
- SATA compliance test support has been added to STX460.
- Two options have been added for the spread sheet view software settings as below:
- Repeat decoded command in frame column
- Decode CDB of command (if you don’t check it, we show the raw data of CDB instead of decoding it)
- In the spreadsheet view, we added a data icon (shown as D) on Read/Write commands for showing transferred data by command.

- In the SAS target emulator and SATA device emulator: Added the ability to specify an LBA range to error injection
- In the SATA device emulator: the Smart feature set has been added. You can enable Smart feature set in setting page, advanced, Miscellaneous Features tab of device emulator.
- In the connectivity window, a progress indicator has been added during scanning USB/Ethernet devices.
- Added "Any Open Reject" to the primitive list in trigger and capture menus. Now you can trigger or filter on "any open reject".
- Host/initiator emulator: Size of data compare has been increased to 2048 DWORDs.
- Host/initiator emulator: Maximum value of loop counter has been increased.
- "Set as factory" feature has been added to Host/Initiator advanced settings.
- Analyzer: Fixed an issue seen in the advanced analyzer during cascading

5.42. Version 2.50

- Trusted command set command interpretation has been added.
- Some changes have been applied on compliance test to supporting ATAPI drives.
- (SAS Initiator/Target Emulators): Scrambling option for 6G speed negotiation to pause the trainer scrambler while primitive is added.
- (SAS Initiator Emulator): Auto Increment the LBA by a user selectable number.

5.43. Version 2.40

- Provide support for all of the following products: STX230, STX231, STX430, STX431 and STX460.
- The ability to cascade STX460 with STX430/431 has been added. For cascading to work properly, you must put all STX460 boards first, and then you place any STX430/431 boards after them.

5.44. Version 2.30

- Added supports for 6Gb/s host and device emulation (SAS and SATA versions).

6. Support

Online Download

Please enable automatic checking for software updates by using Help -> Check for Updates from the software menu.

You can also check LeCroy Protocol Solutions Group's web site for software updates and other support related to this product.
Software updates are available to those users with current Maintenance Agreements.

Online Support

Web: http://www.teledynelecroy.com/
Web (SW downloads):
http://www.teledynelecroy.com/tm/Library/Software/PSG

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